

WHAT IS CLAIMED IS:

1. A self-sealing, dispensing valve comprising:

(A) a peripheral sleeve that surrounds an interior volume and that has

5 (1) a central elongate portion that includes two spaced-apart elongate sidewalls each having an upper region and a lower region; and

(2) two shorter end portions that each (a) define an end wall joining said sidewalls, and (b) have an upper region and a
10 lower region;

(B) a peripheral attachment portion extending from said lower regions of said sidewalls and end walls by which said valve may be attached to a dispensing structure through which can be discharged a product from a supply of said product; and

15 (C) a flexible, elongate head extending from said upper regions of said sidewalls and end walls, said head being generally concave as viewed from the exterior of said valve relative to said interior volume, said head having

(1) an interior surface that interfaces with said interior volume, and

20 (2) a curving exterior surface interfacing with the ambient environment,

said head including a long slit and two spaced-apart, short slits; each of said short slits being

(1) generally perpendicular to said long slit,

25 (2) located at an end of said long slit, and

(3) in communication with said long slit so as to define two, opposed, elongate petals wherein (a) each said petal has a long edge and two short edges, and (b) said petals are normally closed, but open outwardly to permit the discharge of said product through the valve in
30 response to a pressure differential across said head in one pressure gradient direction, and open inwardly to permit the in-venting of ambient

atmosphere through the valve in response to a pressure differential across said head in the opposite pressure gradient direction.

5 2. The valve in accordance with claim 1 in which said valve is adapted to be attached to a dispensing end structure that comprises a separate closure for being releasably or permanently mounted to a container.

 3. The valve in accordance with claim 1 in which said peripheral attachment portion is a laterally outwardly extending flange.

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 4 The valve in accordance with claim 1 in which (1) said interior surface includes a flat area, and (2) said elongate slit lies along an imaginary plane that (a) passes through said head, and (b) is perpendicular to said head interior surface flat area.

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 5. The valve in accordance with claim 1 in which each said end wall includes a straight section between two curved sections which each joins one of said sidewalls.

20 6. The valve in accordance with claim 1 in which the length of each said sidewall is at least three times the width of said valve head.

 7. The valve in accordance with claim 1 in which said valve is included in combination with a separate housing that retains said valve and that is adapted for being releasably or permanently mounted to said container, said housing including a support wall adjacent each said elongate sidewall in said interior volume for preventing each said sidewall from collapsing beyond said support wall.

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8. The valve in accordance with claim 1 in which said valve head petals each is thinner along said elongate slit than at locations away from said elongate slit.

9. A self-sealing, dispensing valve comprising:

5 a peripheral attachment portion by which said valve may be attached to a dispensing structure through which can be discharged a product from a supply of said product such that the discharging product generally defines a flow direction from said valve into the ambient environment;

10 a flexible, peripheral sleeve extending from said peripheral attachment portion, at least part of said sleeve extending generally parallel to said flow direction to a location either outwardly or inwardly of said peripheral attachment portion, said sleeve, when viewed from the ambient environment, has a plan view configuration comprising a central elongate portion and two shorter end portions at opposite ends of said central elongate portion; and

15 a flexible, elongate head extending generally laterally from said peripheral sleeve, said head having a thickness and including at least one elongate slit through said thickness defining two, opposed openable regions in said head which (1) each has at least one transverse face for sealing against a transverse face of said other openable region, and (2) are normally closed but
20 open to permit the discharge of said product therethrough in response to a pressure differential across said head.

25 10. The valve in accordance with claim 9 in which (1) said peripheral attachment portion is a laterally extending flange; and (2) said valve is adapted to be attached via said flange to a dispensing end structure that comprises a separate closure for being releasably or permanently mounted to a container.

30 11. The valve in accordance with claim 9 in which said at least part of said sleeve extends in the flow direction to a location outwardly of said peripheral attachment portion.

12. The valve in accordance with claim 9 in which said at least part of said sleeve extends opposite the flow direction to a location inwardly of said peripheral portion.

5 13. The valve in accordance with claim 9 in which said head is generally concave when the valve head openable regions are closed as viewed from the exterior ambient environment when said valve is attached to a dispensing structure.

10 14. The valve in accordance with claim 9 in which said central elongate portion of said peripheral sleeve includes two spaced-apart elongate sidewalls;

 said two shorter end portions of said peripheral sleeve each comprises an end wall joining said sidewalls; and

15 each said end wall includes a straight section between two curved sections which each joins one of said sidewalls.

15. The valve in accordance with claim 14 in which the length of each sidewall is at least three times the width of said valve head.

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16. The valve in accordance with claim 9 in which a portion of said peripheral sleeve extends in the flow direction to a location inwardly of said peripheral attachment portion; and

25 said head includes at least two elongate slits which intersect to define four segment-shaped petals which (1) each functions as one of said openable regions, and (2) are normally closed but open to permit the discharge of said product therefrom in response to a pressure differential across said head.

30 17. The valve in accordance with claim 16 in which said head includes at least two spaced-apart pairs of intersecting slits wherein each pair of intersecting slits defines four of said petals.

18. The valve in accordance with claim 9 in which
said central elongate portion of said peripheral sleeve includes two
spaced-apart elongate sidewalls;

5 said two shorter end portions of said peripheral sleeve each comprise an
end wall joining said sidewalls; and

 said valve is included in combination with a separate housing that retains
said valve and that is adapted for being releasably or permanently mounted to
said container, said housing including a support wall adjacent each said elongate
sidewall for preventing each said sidewall from collapsing beyond said support
10 wall toward the other sidewall.

19. The valve in accordance with claim 18 in which
said head has (1) an interior surface interfacing with said product, and
(2) an exterior surface for interfacing with the ambient environment;

15 said exterior surface is continuously curving as viewed along a transverse
cross section of said valve head;

 said interior surface includes a flat area;

 said at least one elongate slit lies along an imaginary plane passing
through said head; and

20 said head further includes two spaced-apart, short slits which each (1) are
generally perpendicular to said at least one elongate slit, (2) are located at an
end of said at least one elongate slit, and (3) communicate with said at least one
elongate slit so as to define opposed elongate petals functioning as said
openable regions wherein each said petal has a long edge and two short edges.

25 20. The valve in accordance with claim 9 in which (1) said head
includes at least two spaced-apart sets of intersecting slits, and (2) said thickness
of said head is non-uniform relative to the location of at least two of said sets
of intersecting slits so that a thinner portion of said head is urged further
30 outwardly than a thicker portion of said head when said valve is subjected to
said pressure differential whereby the discharge of said product through one of

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said two sets of intersecting slits is at an relative angle to the discharge of said product through the other set of slits.